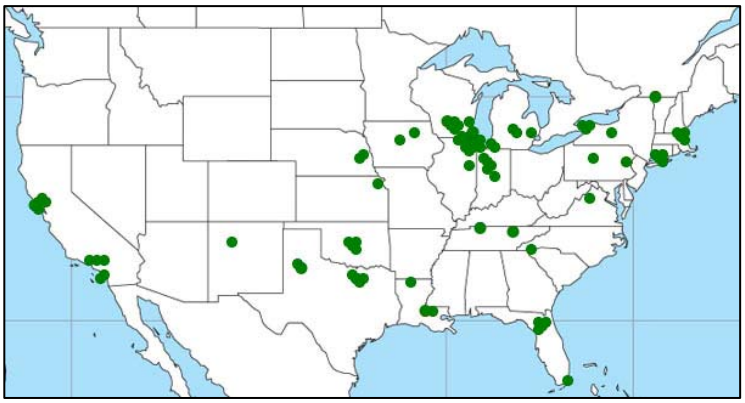
A National Cyber-Infrastructure for Science

Open Science Grid

The Open Science Grid's shared national cyber-infrastructure enables scientists across the US to harness the power of large-scale distributed computing. OSG members from universities and national laboratories contribute and share computing and storage from sixty sites, ranging from large multi-purpose high-performance computing facilities to smaller campus computing clusters.

OSG and the LHC

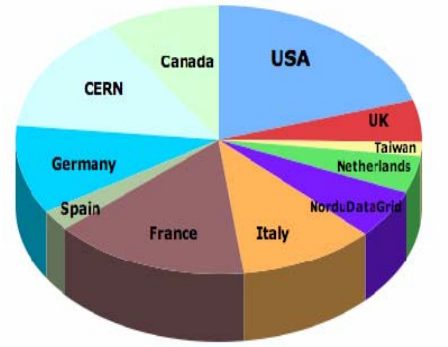
The OSG enables US scientists to fully participate in the LHC particle physics experiments. Through the OSG's shared cyber-infrastructure, physicists across the US simulate, access and process LHC data in their quest for scientific discovery.



US sites on the Open Science Grid

The OSG provides software and operational support to the members of the US LHC community, giving them the tools necessary to seamlessly transport, access and analyze petabyte-size datasets scattered around the world. The OSG, as a vital part of the Worldwide LHC Computing Grid, includes the Tier-1 computing facilities at Brookhaven National Laboratory and Fermilab, and the Tier-2 and Tier-3 computing facilities located at universities across the United States.

In 2007, the OSG played a significant role in ATLAS and CMS data simulation activities and at-scale tests of their global computing infrastructure. Data were transferred at rates of gigabytes per second, more than a petabyte of data was stored, and OSG resources generated more than 25% of simulated data production that was produced last year worldwide.



WLCG ATLAS and CMS processing usage for the past year. OSG was responsible for the USA portion.

OSG and Technology Transfer

Through the OSG consortium, large-scale distributed computing technologies pioneered for high-energy physicists are transferred to other scientific communities on the path to a dramatic increase in experimental data and simulation.

The OSG consortium includes members from the biology, astrophysics and chemistry communities. Common policies and software enable researchers to dynamically shift their computations and data across the OSG infrastructure as shared resources become available. Thus, at any one time, there is a diverse mix of scientific applications using the OSG's distributed national facility.

OSG maintains, distributes and supports the Virtual Data Toolkit common software needed to manage data and computations across the national facility, and which forms the basis for distributed facilities in the US and Europe.

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www.opensciencegrid.org